Postgraduate Diploma
Technology and Computer Science Teacher Training in High School Education

tech technological university

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Postgraduate Diploma
Technology and Computer Science Teacher Training in High School Education

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/education/postgraduate-diploma/postgraduate-diploma-technology-computer-science-teacher-training-high-school-education

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01

Introduction

Undoubtedly, new technologies are part of everyday life and this also includes education. The digital world and emerging trends point towards the curricular incorporation of learning such as robotics, 3D printing, or Augmented Reality. Given this scenario, it is necessary for Education professionals to be highly qualified to be able to plan, design, and program a vital subject for the professional development of students, especially in High School Education. This is the reason for the creation of this program, which provides the most advanced knowledge on technological education, teaching programs, and scientific-technological learning strategies. All in 100% online mode and with innovative teaching material.

This 100% online Postgraduate Diploma provides you with the content you need to develop successful High School Education Technology and Computer Science lessons from start to finish"

The development of information technology in today's society is key to the promotion of various economic sectors and the creation of new professional profiles that support their functions in these areas. Therefore, acquiring digital and technological skills is essential for high school students, who must cope in their daily lives with an increasingly digitized environment that fosters the emergence of new professions.

In this context, the role of the Technology and Computer Science teaching professional is fundamental for the student's personal and educational development. That is why TECH offers the teacher a Postgraduate Diploma that provides the most advanced knowledge about the concepts to be addressed in their sessions, the most effective teaching, and syllabus design of the subject.

A program based on an exhaustive syllabus prepared by a specialized teacher team that will guide you at all times so that you obtain the most relevant and valuable information for your professional progression. Therefore, through video summaries of each topic, videos in detail, specialized readings and case studies, the high school students will delve into the technology of society, the most innovative learning techniques and strategies, or current teacher methodologies for teaching technology.

This is a program taught exclusively online, without fixed class schedules and with the freedom to distribute the course load according to the needs of the graduate. An excellent opportunity to grow as a teacher in a sector of education that demands professionals with broad competencies and skills for teaching technology and information technology to the young people of the future.

This **Postgraduate Diploma in Technology and Computer Science Teacher Training in High School Education** contains the most complete and up-to-date educational program on the market. The most important features include:

- The development of case studies presented by experts in teaching in High School Education
- The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Design, plan, and apply the most effective teaching in Technology and Computer Science with the learning you will acquire in this program"

With this Postgraduate Diploma, you will be up-to-date on trends in teaching programming, robotics, and 3D printing in High School Education. Enroll now"

With this program you will learn about the use of free software and e-Learning platforms in the educational system.

Get the most out of your high school students and teach them, thanks to this program, to develop emotional intelligence by applying technological tools.

The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the educational year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

This Postgraduate Diploma has been created with the main objective of offering teachers an exhaustive knowledge of the new pedagogical tools used in the subject of Technology and Computer Science in High School Education. For this purpose, TECH provides multimedia resources that can be accessed throughout the 450 hours of this program and an excellent team of teachers specialized in Education.

You will be able to boost your career as a teacher by applying the latest methodologies in the teaching-learning of Technology and Computer Science in High School Education"

General Objectives

- Introduce students to the world of teaching, from a broad perspective that provides them with the necessary skills for the performance of their work
- Know the new tools and technologies applied to teaching
- Show the different options and ways the teacher can work in their post
- Promote the acquisition of communication and knowledge transmission skills and abilities
- Encourage continuing education for students

Discover with this university program all the teaching resources you need to make dynamic and entertaining lessons in Technology and Computer Science"

Specific Objectives

Module 1. Complements for the Disciplinary Training of Technology and Computer Science

- Expose the concepts of Technology and Computer Science and inquire about them
- Know the importance of Technology in society, its advantages and disadvantages, and its main characteristics
- Learn the concept of technological renovation, making a historical journey to differentiate the different stages of the evolution of Technology and Computer Science
- Understand the social relevance of knowing the technological and informatics development, especially in the educational field
- Understand the concept of educational Technology by different authors and their most relevant contributions
- Know how educational Technology has evolved over the years and its different phases

Module 2. Technology and Computer Science Syllabus Design

- Define the concept of syllabus
- Detail the elements that make up the syllabus
- Explain the concept of syllabus design
- Describe the levels of concreteness of the syllabus
- Explain the different models of the syllabus
- Determine the aspects that should be taken into account in the elaboration of a teaching program

Module 3. Teaching of Technology and Computer Science

- Understand the origin and evolution of didactics
- Clarify the definition of the term didactic
- Expose the most relevant learning theories in the world of Education and the main authors related to them
- Differentiate these theories of learning and know their main characteristics
- Talk about behaviorism, cognitivism and constructivism
- Expose the concepts of classical conditioning and operant conditioning and their relationship in learning theories
- Explain what learning for the digital era and the theory of connectivism consist of
- Gain knowledge about the social theories of learning, their principles and their relation with digital learning

03

Course Management

This educational institution maintains a philosophy based on offering all high school students a quality education that is accessible to all. For this reason, it carries out a rigorous selection process of all the teachers who teach the programs as a guarantee for the student who wishes to access the most advanced and up-to-date information. Therefore, the teachers who take this program will have at their disposal a specialized teaching staff with extensive professional experience in teaching High School Education.

TECH has brought together in this university program an excellent team of teachers with extensive professional experience in the education sector"

Management

Dr. Barboyón Combey, Laura

- Teacher of Primary Education and Postgraduate Studies
- Teacher in Postgraduate University Studies of High School Teacher Formation
- Teacher of Primary Education in several schools
- Doctor in Education from the University of Valencia
- Master's Degree in Psychopedagogy from the University of Valencia
- Degree in Primary School Education with a major in English Teaching from the Catholic University of Valencia San Vicente Mártir

04

Structure and Content

Digital skills are nowadays key to the professional development of high school students. That is why the syllabus of this Postgraduate Diploma is planned to show the main technological and computer contents that High School Education students must master. In addition, the syllabus of this program includes modules that will provide the necessary information to be able to carry out an effective programming and teaching unit, and all the necessary pedagogical tools. A comprehensive program designed for teachers who want to advance in their field.

A syllabus with a theoretical-practical approach for you to prepare your Technology and Computer Science lessons in a much more attractive way"

Module 1. Complements for the Disciplinary Training of Technology and Computer Science

1.1. Technology in Society Evolution of Technological Education
- 1.1.1. Previous Concepts
- 1.1.2. Importance of Technology in Society
- 1.1.3. Technological Renovation
- 1.1.4. Importance of Teaching Technological and Information Technology Development in Society
- 1.1.5. Historical Evolution of Educational Technology
- 1.1.6. Conceptualization of Educational Technology

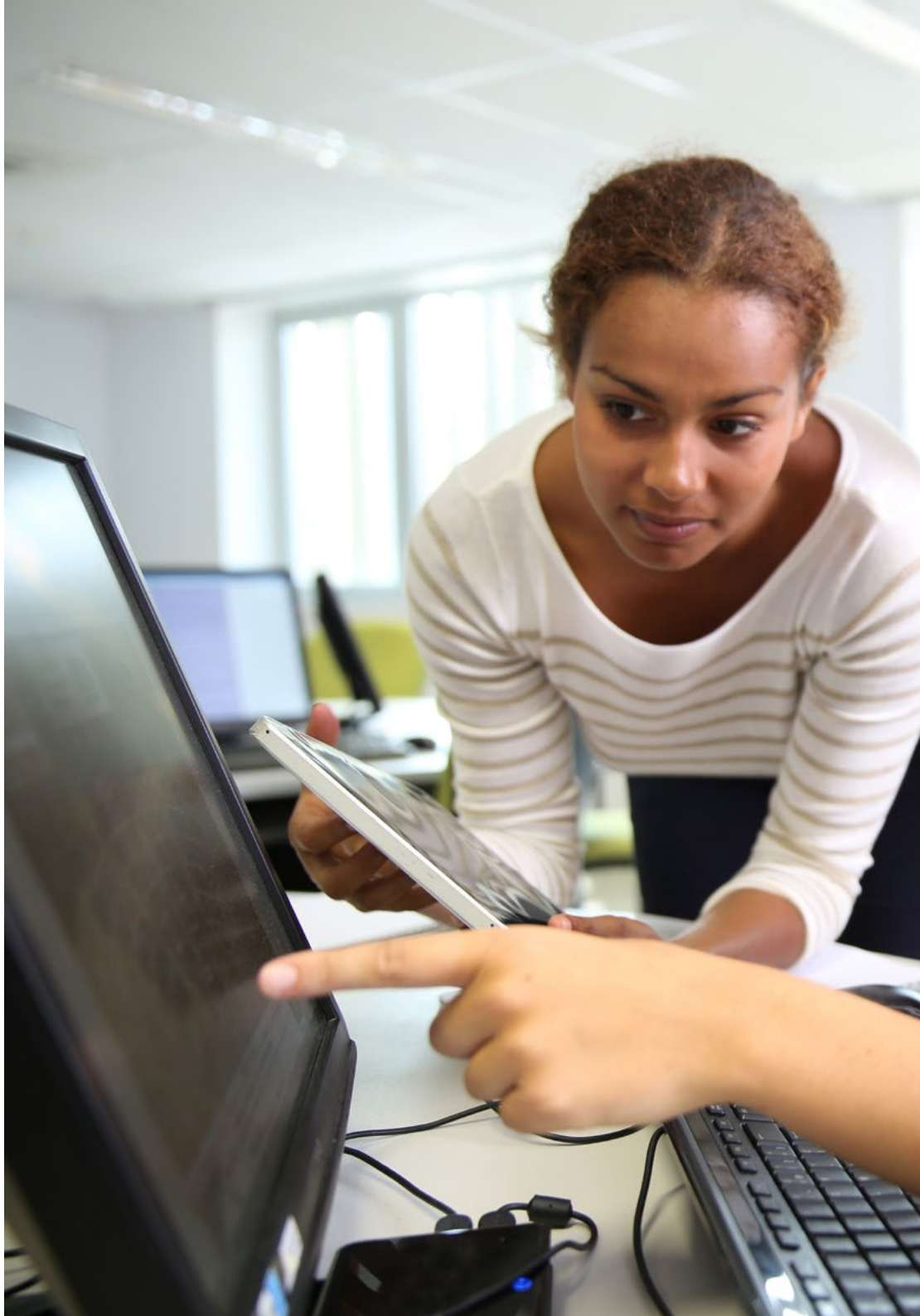
1.2. Professional Formation
- 1.2.1. Vocational Training Fields
- 1.2.2. The Demand of Technology Professionals
- 1.2.3. Competencies to Create Technological Solutions
- 1.2.4. Best Practices in the Promotion of STEM Vocations

1.3. Information Management and Knowledge Communication
- 1.3.1. Searching and Retrieving Information: Search Engines, Social Bookmarking and Aggregators
- 1.3.2. Databases and Repositories for Teachers and High School Students
- 1.3.3. Knowledge Management Resources

1.4. Generate and Distribute Knowledge with ICT Communication with ICT in Technology
- 1.4.1. Tools for Content Generation
- 1.4.2. Means for Content Distribution
- 1.4.3. Production and Editing of Multimedia Material
- 1.4.4. Social Media. Microblogging
- 1.4.5. Content Curation
- 1.4.6. The Teacher as Community Manager

1.5. Evolution of Technological Education
- 1.5.1. What are PLE and What Are They For?
- 1.5.2. Applications and Tools
- 1.5.3. Digital Identity and Its Management

1.6. Tools for the Creation and Management of Educational Virtual Communities
- 1.6.1. Building Collective Intelligence: Virtual Communities
- 1.6.2. Types and Examples of Virtual Communities



1.7. Free Software in Education E-Learning Platforms Mobile and Ubiquitous Pedagogy
- 1.7.1. Free Software Educational Applications
- 1.7.2. E-Learning Platforms Examples of Use
- 1.7.3. B-Learning in High School and Vocational Training
- 1.7.4. Mobile Learning
- 1.7.5. Tablets and Smartphones
- 1.7.6. Learning Management with App Mobile Application Creation
- 1.7.7. Strengths and Weaknesses of the Use of Mobile Applications in the Classroom

1.8. Criteria for the Selection of Educational Tools Instructional Design with ICT
- 1.8.1. Design of Educational Tools
- 1.8.2. Main Criteria for the Selection of Educational Tools
- 1.8.3. Essential Aspects of Instructional Design
- 1.8.4. Design of an ICT-Supported Classroom Training Proposal
- 1.8.5. Design of Materials and Resources: Tools

1.9. Creativity Management and Emotional Intelligence in Technology
- 1.9.1. Creative Thinking
- 1.9.2. Creativity and Problem Solving in Technology
- 1.9.3. Methods for Developing Creativity
- 1.9.4. Some Resources
- 1.9.5. Emotional Intelligence, Its Elements and Ways of Manifestation
- 1.9.6. Importance of Emotional Intelligence Management
- 1.9.7. Implications of the Development of Emotional Intelligence in the Teacher's Practice
- 1.9.8. Techniques and Strategies for the Development of Emotional Intelligence Inside and Outside the Technology Classroom

1.10. Nature as An Inspiration for Technological Development
- 1.10.1. Nature as An Inspiration for Technological Development
- 1.10.2. Planned Obsolescence
- 1.10.3. Examples and Best Practices with Technology

Module 2. Technology and Computer Science Syllabus Design

2.1. Syllabus and its Structure
- 2.1.1. School Syllabus: Concept and Components
- 2.1.2. Syllabus Design: Concept, Structure and Functioning
- 2.1.3. Levels of Syllabus Specification
- 2.1.4. Syllabus Model
- 2.1.5. Educational Programming as a Working Tool in the Classroom

2.2. Legislation as a Guide to Syllabus Design and Key Competencies
- 2.2.1. Review of Current National Educational Legislation
- 2.2.2. What are Competencies?
- 2.2.3. Types of Skills
- 2.2.4. Key Competencies
- 2.2.5. Description and Components of Key Competencies

2.3. The Spanish Education System Teaching Levels and Modalities
- 2.3.1. Education System: Interaction between Society, Education and the School System
- 2.3.2. The Educational System: Factors and Elements
- 2.3.3. General Characteristics of the Spanish Educational System
- 2.3.4. Configuration of the Spanish Educational System
- 2.3.5. Compulsory High School Education
- 2.3.6. High School
- 2.3.7. Artistic Education
- 2.3.8. Language Teaching
- 2.3.9. Sports Education
- 2.3.10. Adult Education

2.4. Analysis of Syllabus for Technology and Computer Science
- 2.4.1. PGA Aspects in Technology and Computer Science
- 2.4.2. Subject Blocks by Educational Stages
- 2.4.3. Blocks of Contents by Subject

2.5. Educational Programming: Basic Elements
- 2.5.1. Context
- 2.5.2. Objectives Key Competencies
- 2.5.3. Contents

2.6. Teaching Programming: Methodology, Expected Results, Materials, Evaluation and Complementary Elements
- 2.6.1. Evaluation Criteria and Learning Results
- 2.6.2. Methodology
- 2.6.3. Materials, Resources
- 2.6.4. Evaluation: Procedures and Grading Criteria Other Sections: TIC and Sociocultural Activities, Measures for Attention to Diversity, and Curricular Adaptations

2.7. Teaching Units in High School Education
- 2.7.1. Definition of Teaching Unit
- 2.7.2. Elements that Make Up a Teaching Unit
- 2.7.3. Methodology

2.8. Teaching Unit in Vocational Training and Adult Education
- 2.8.1. Definition of Working Unit
- 2.8.2. Elements that Make Up a Teaching Unit
- 2.8.3. Methodology

2.9. Programming of a Teaching Unit in ESO, High School, Vocational Training and Adult Education
- 2.9.1. How to Program a Teaching Unit in ESO?
- 2.9.2. How to Program a Teaching Unit in High School?
- 2.9.3. How to Program a Work Unit in Vocational Training?
- 2.9.4. How to Program a Teaching Unit in Adult Education?

2.10. Examples of Didactic Unit
- 2.10.1. Methods
- 2.10.2. Typology of Activities
- 2.10.3. Grouping
- 2.10.4. Resources to be Used
- 2.10.5. Work Unit in Basic Vocational Training
- 2.10.6. Teaching Unit in High School Education for Adults

Module 3. Teaching of Technology and Computer Science

3.1. General Didactics and Learning Theories
- 3.1.1. Concept
- 3.1.2. Learning Theories
- 3.1.3. Learning Theories for the Digital Age
- 3.1.4. Social Learning Theories

3.2. Techniques and Strategies of Scientific-Technological Learning
- 3.2.1. Inquiring Learning and ICT
- 3.2.2. Techniques and Strategies of Scientific-Technological Learning

3.3. Learning Techniques and Strategies Activate Applied to the Specialty
- 3.3.1. Collaborative-Learning Cooperative Learning
- 3.3.2. Learning by Doing
- 3.3.3. Learning by Participating

3.4. Teacher Methodologies for Teaching Technology and Innovative Methodologies
- 3.4.1. Academic-Expository Model
- 3.4.2. Problem-Solving Models
- 3.4.3. Project-Solving Models
- 3.4.4. Discovery Learning Model
- 3.4.5. Incidentally Learning Model
- 3.4.6. Interdisciplinary Model
- 3.4.7. Model with Specific Teaching Materials
- 3.4.8. Research or Inquiry Model
- 3.4.9. Product Analysis Model
- 3.4.10. Game-Based Learning (GBL)
- 3.4.11. Online Applications: Clash of Clans
- 3.4.12. Flipped Classroom

3.5. Mainly Theoretical Focus of Learning Difficulties
- 3.5.1. Neurobiological or Organic Theories
- 3.5.2. Theories of Cognitive Deficit Processes
- 3.5.3. Psycholinguistic Theories
- 3.5.4. Psychogenic Theories
- 3.5.5. Environmentalist Theories

3.6. Activities for Learning the Subject: New Trends
- 3.6.1. Introduction to Productive Learning
- 3.6.2. Tradition vs. Innovation
- 3.6.3. Mentoring in Technology, IT and Training Classrooms
- 3.6.4. Event-Based Learning
- 3.6.5. Design Thinking

3.7. Teaching Resources in Technology, Computer Science and Vocational Training
- 3.7.1. Teaching Resources in Technology, Computer Science and Vocational Training
- 3.7.2. Workshop/Computer Room/Machinery and Equipment
- 3.7.3. Software and Simulators

3.8. Teaching Resources: Programming, Robotics and 3D Printers Emerging Trends
- 3.8.1. Programming
- 3.8.2. Robotics
- 3.8.3. 3D Printing
- 3.8.4. Augmented Reality
- 3.8.5. QR Codes
- 3.8.6. Video Games and Simulators

3.9. Assessment in Technology, Computer Science and Vocational Training
- 3.9.1. Assess Learning Outcomes with Active Methodologies
- 3.9.2. Standard Evaluation, Customized Evaluation
- 3.9.3. Formative and Summative Evaluation/Self-Evaluation/co-Evaluation-Evaluation
- 3.9.4. Advantages of Continuous Assessment and Acquisition of Competencies
- 3.9.5. Evaluation of the Teacher's Work with ICTs
- 3.9.6. ICT Evaluation Indicators
- 3.9.7. Evaluation Tools: E-Portfolio and E-Rubrics

3.10. Teachers in the Classroom: How to Create an Appropriate Place for Teaching-Learning?
- 3.10.1. Classroom Skills Development
- 3.10.2. Classroom Environment

05

Methodology

This training program offers a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH Education School we use the Case Method

In a given situation, what should a professional do? Throughout the program students will be presented with multiple simulated cases based on real situations, where they will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method.

With TECH, educators can experience a learning methodology that is shaking the foundations of traditional universities around the world.

It is a technique that develops critical skills and prepares educators to make decisions, defend their arguments, and contrast opinions.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

1. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.

2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.

3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life teaching.

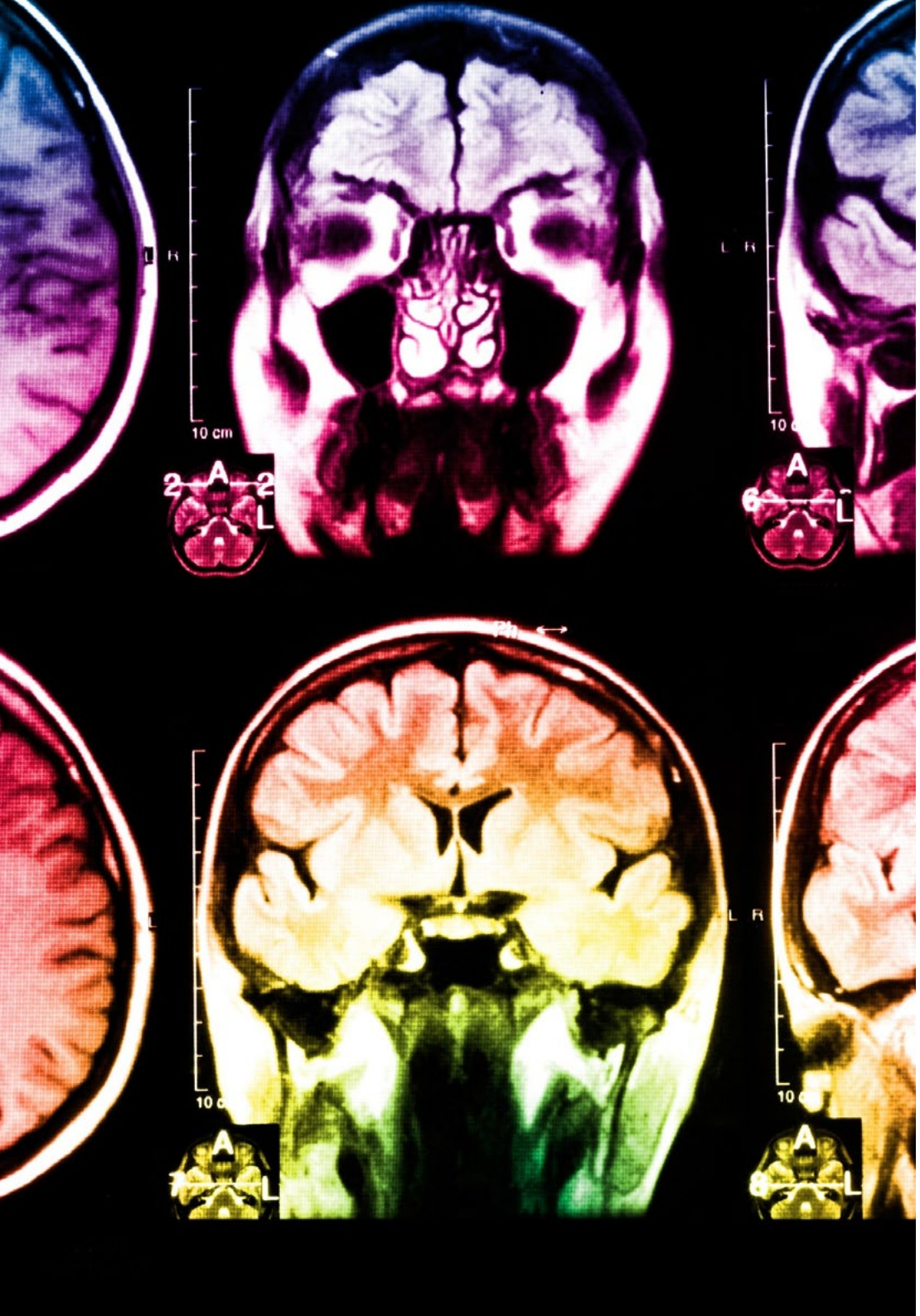
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

Our University is the first in the world to combine case studies with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.

Educators will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology we have trained more than 85,000 educators with unprecedented success in all specialties. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by our learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialist educators who teach the course, specifically for the course, so that the teaching content is really specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Educational Techniques and Procedures on Video

TECH introduces students to the latest techniques, with the latest educational advances, and to the forefront of Education. All this, first-hand, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.

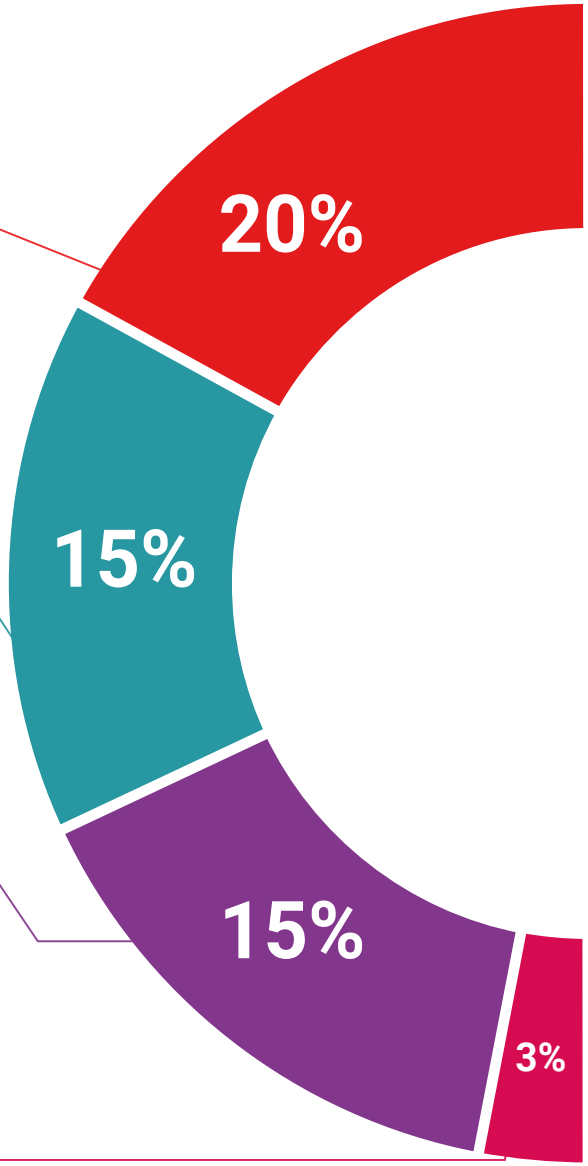
Interactive Summaries

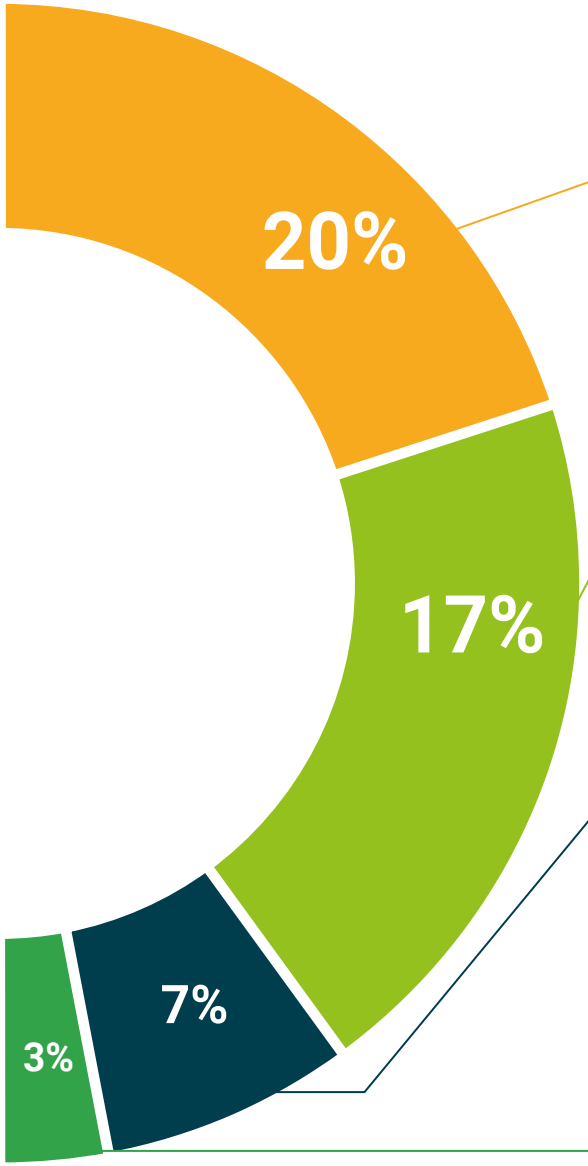
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive multimedia content presentation training Exclusive system was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises: so that they can see how they are achieving your goals.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

06

Certificate

The Postgraduate Diploma in Technology and Computer Science Teacher Training in High School Education guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This **Postgraduate Diploma in Technology and Computer Science Teacher Training in High School Education** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Technology and Computer Science Teacher Training in High School Education**

Official Nº of Hours: **450 h.**


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Technology and Computer Science Teacher Training in High School Education

This is a qualification awarded by this University, equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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